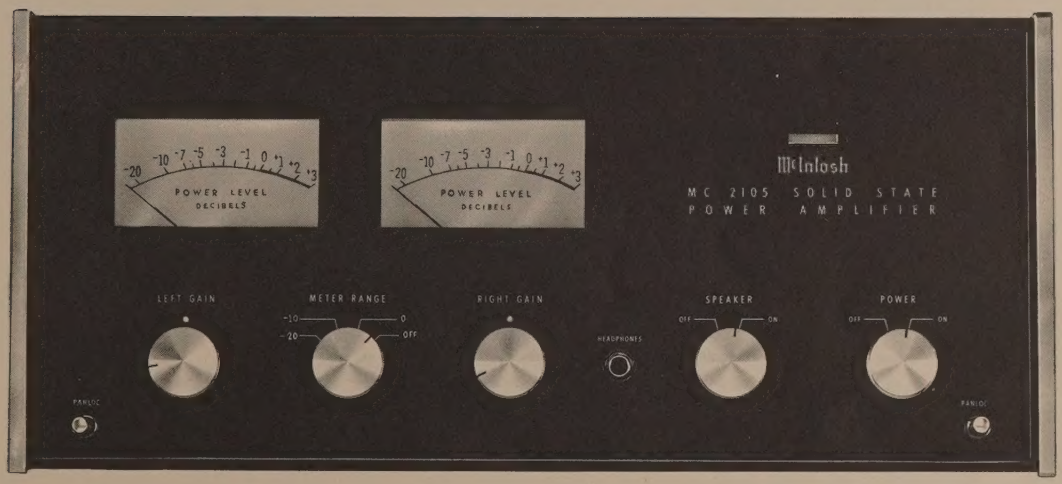
McIntosh

MC 2105

POWER AMPLIFIER



SERVICE INFORMATION

STARTING WITH SERIAL NO. 26M08

McINTOSH LABORATORY INC. 2 CHAMBERS STREET BINGHAMTON, NEW YORK

MC 2105

ELECTRICAL SPECIFICATIONS

POWER OUTPUT:

105 RMS watts continuous per channel into 4, 8, or 16 ohms both channels operating.

HARMONIC DISTORTION:

Less than 0.25% at 105 watts power output from 20 Hz to 20 kHz, both channels operating. Typical performance is less than 0.1% at rated power. Distortion decreases as output is reduced.

INTERMODULATION DISTORTION:

Less than 0.25% if instantaneous peak power output is 210 watts or less per channel with both channels operating for any combination of frequencies 20 Hz to 20 kHz.

FREQUENCY RANGE:

20 Hz to 20 kHz +0, -0.1 dB at rated power.

15 Hz to 60 kHz +0, -0.5 dB at rated power.

10 Hz to 100 kHz +0, -3.0 dB at rated power.

NOISE AND HUM:

90 dB or more below rated output.

OUTPUT IMPEDNACE:

4, 8, and 16 ohms

OUTPUT VOLTAGES:

25 volts (connect to 8 ohm outputs.)

DAMPING FACTOR:

18 at 4 ohms output

13 at 3 ohms output

10 at 16 ohms output

INPUT IMPEDNACE:

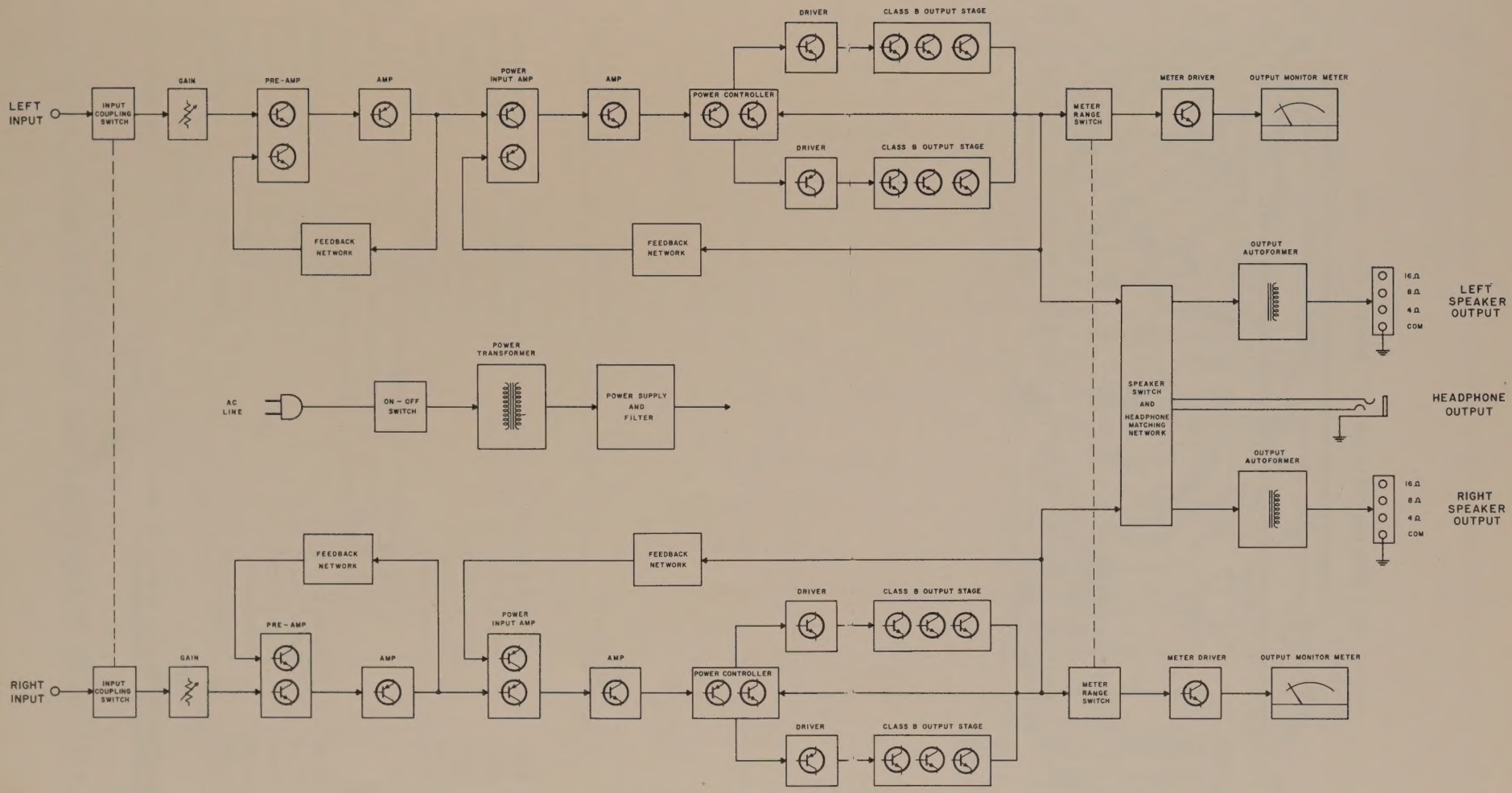
200,000 ohms

INPUT SENSITIVITY:

0.5 volts. Level control provided for higher input voltage.

POWER REQUIREMENTS:

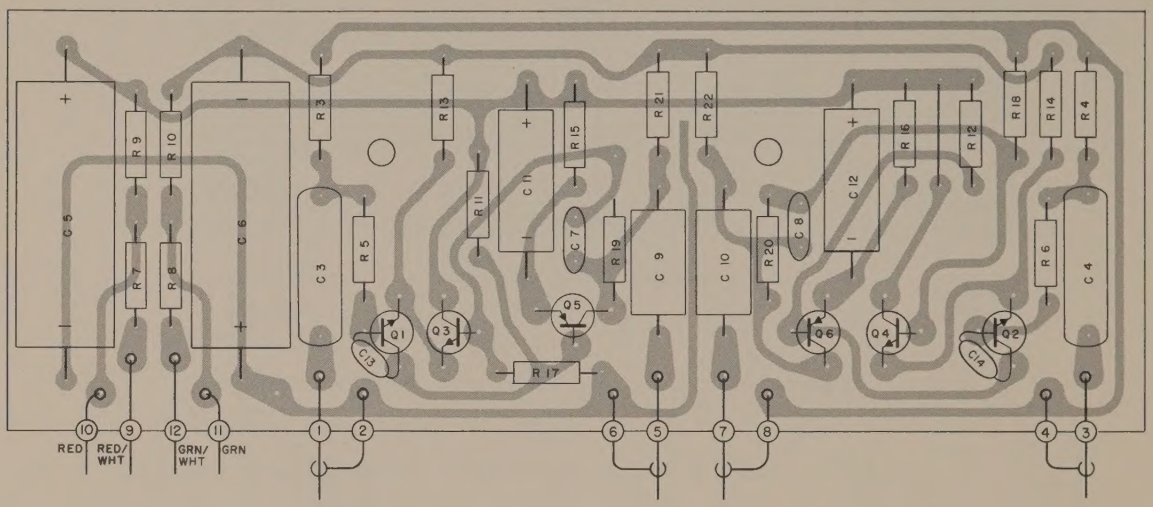
117 volts AC 50-60 Hz, 90 watts at zero signal output, 450 watts at rated output.

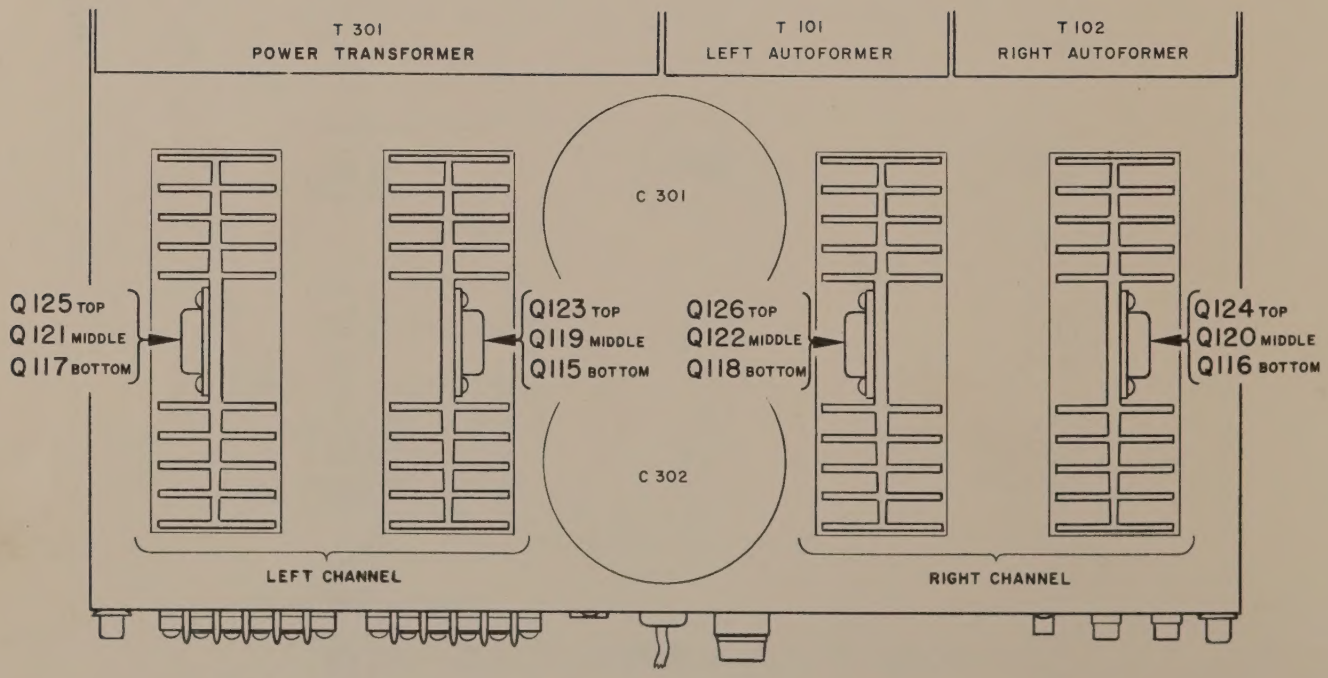


MC2105 BLOCK DIAGRAM

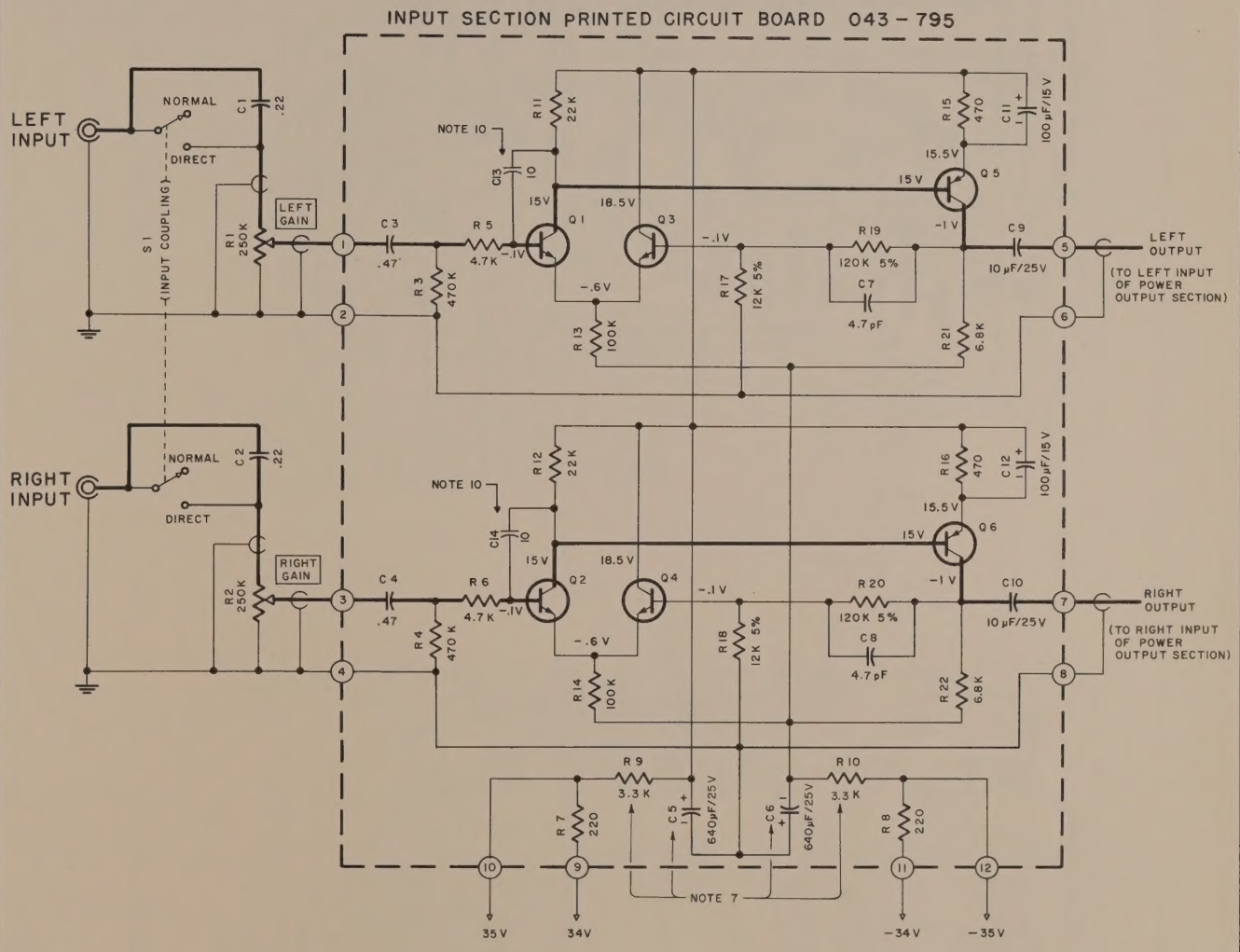
MC 2105

INPUT SECTION PRINTED CIRCUIT BOARD 043-795





LOCATION OF TRANSISTORS NOT ON PRINTED CIRCUIT BOARDS

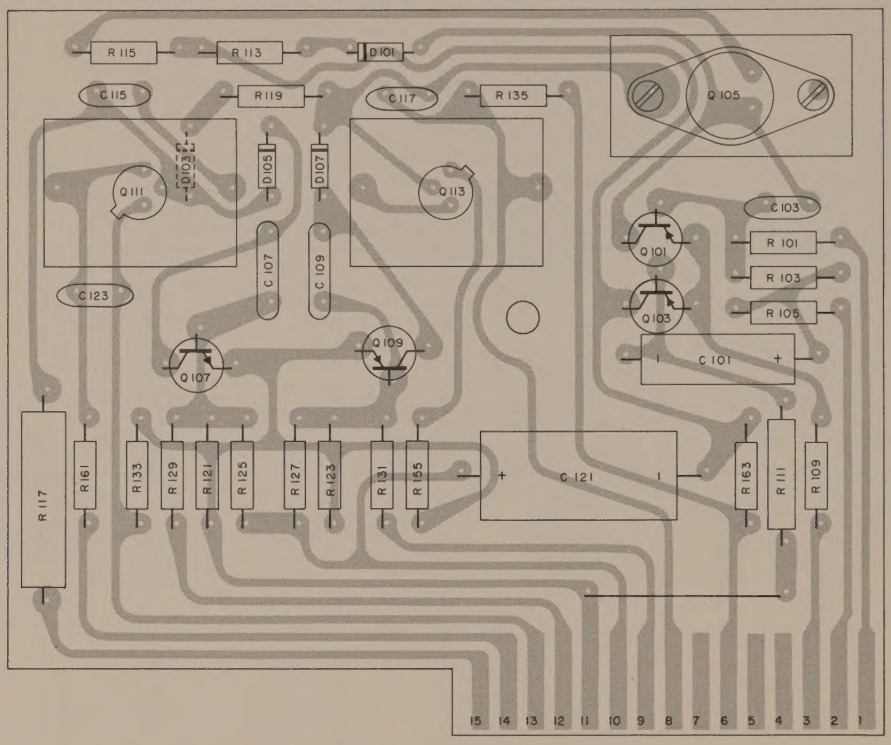


HEAVY LINE SHOWS PRIMARY SIGNAL PATH

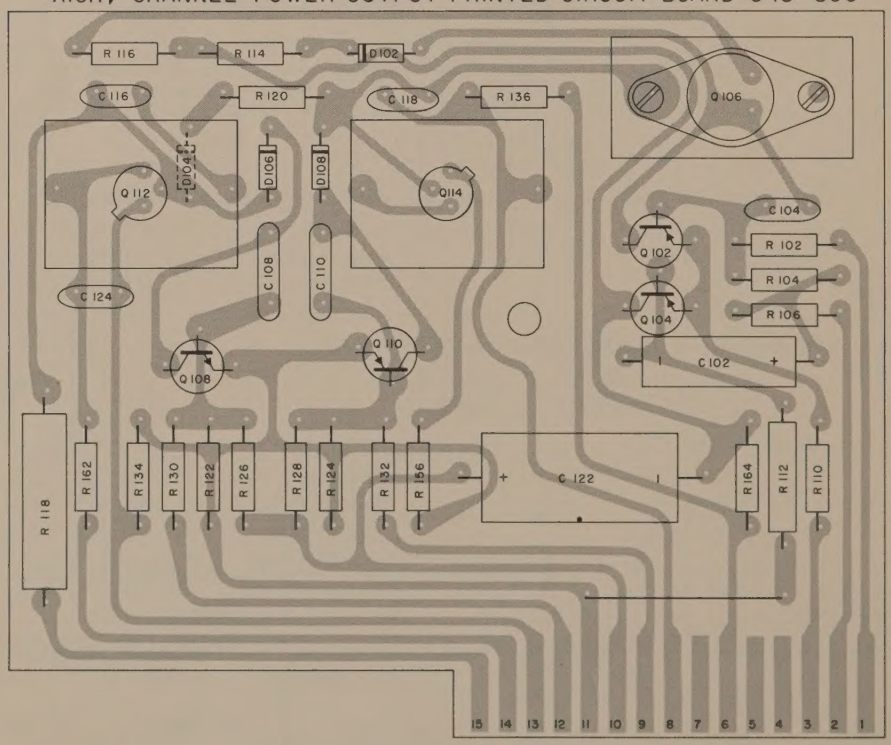
INPUT SECTION

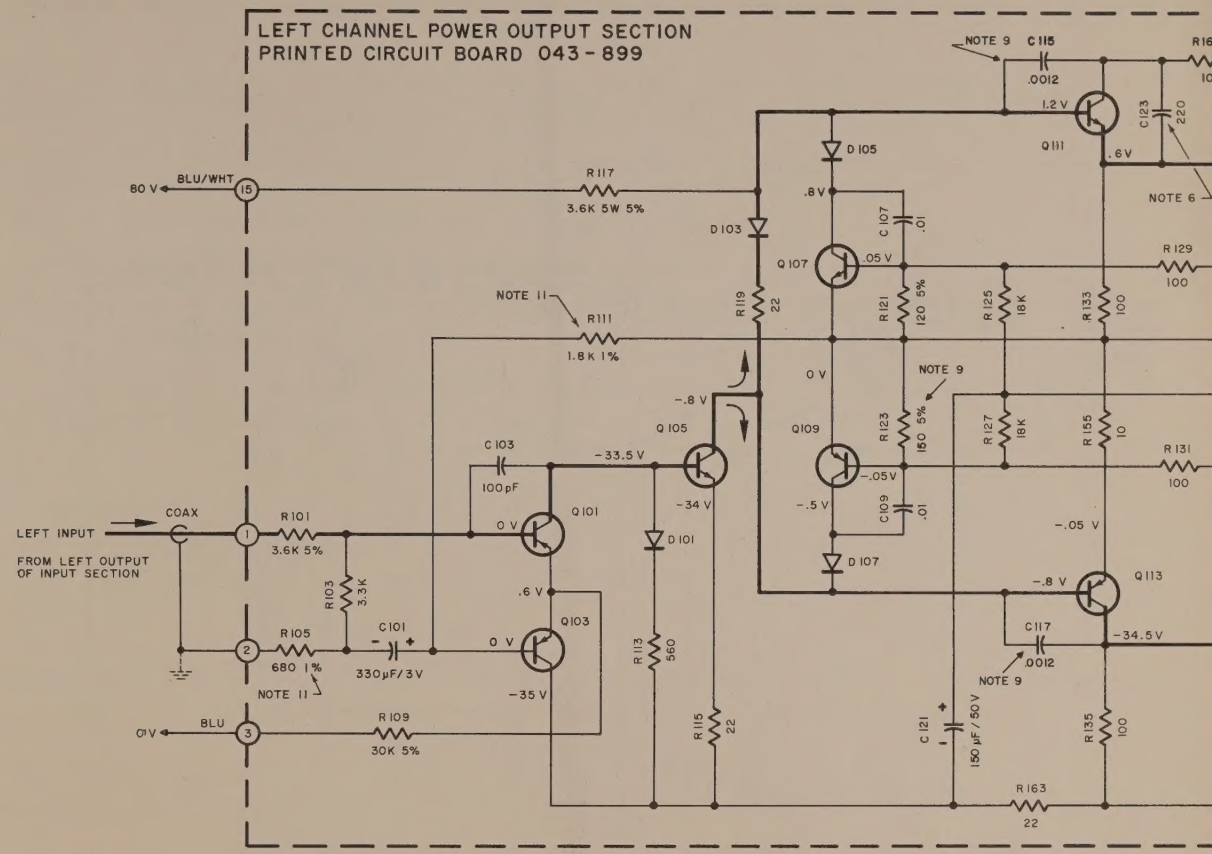
MC 2105 154-407

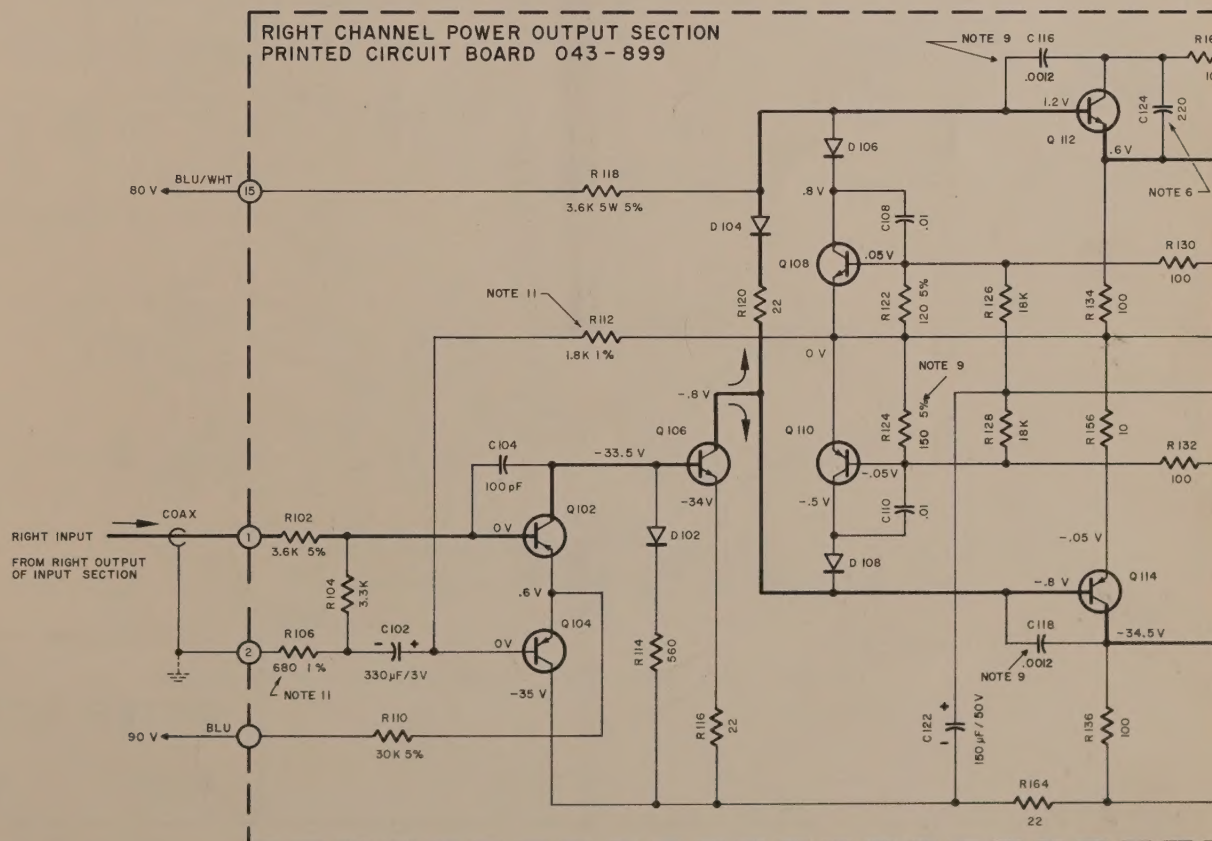
LEFT CHANNEL POWER OUTPUT PRINTED CIRCUIT BOARD 043-899

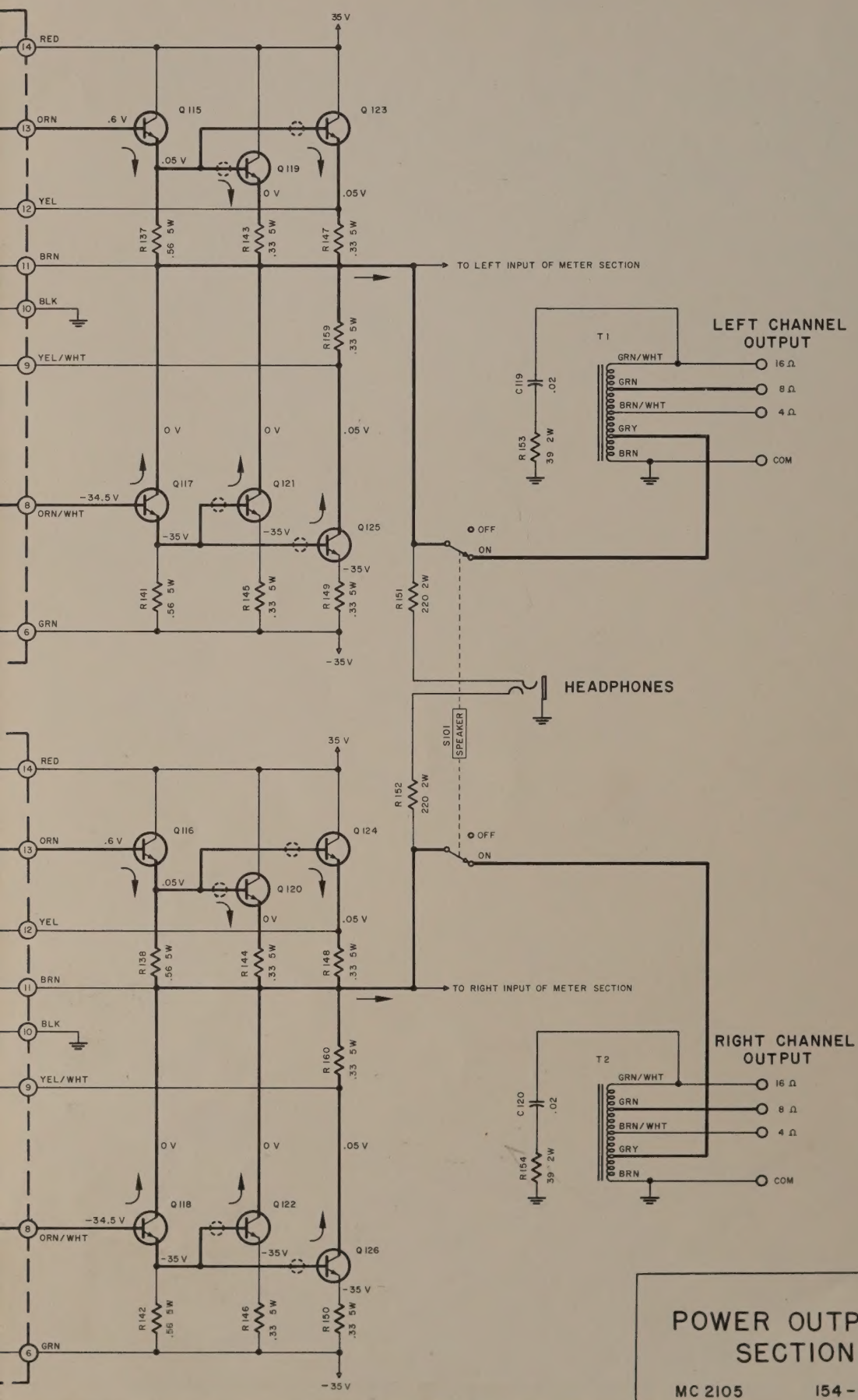


RIGHT CHANNEL POWER OUTPUT PRINTED CIRCUIT BOARD 043-899



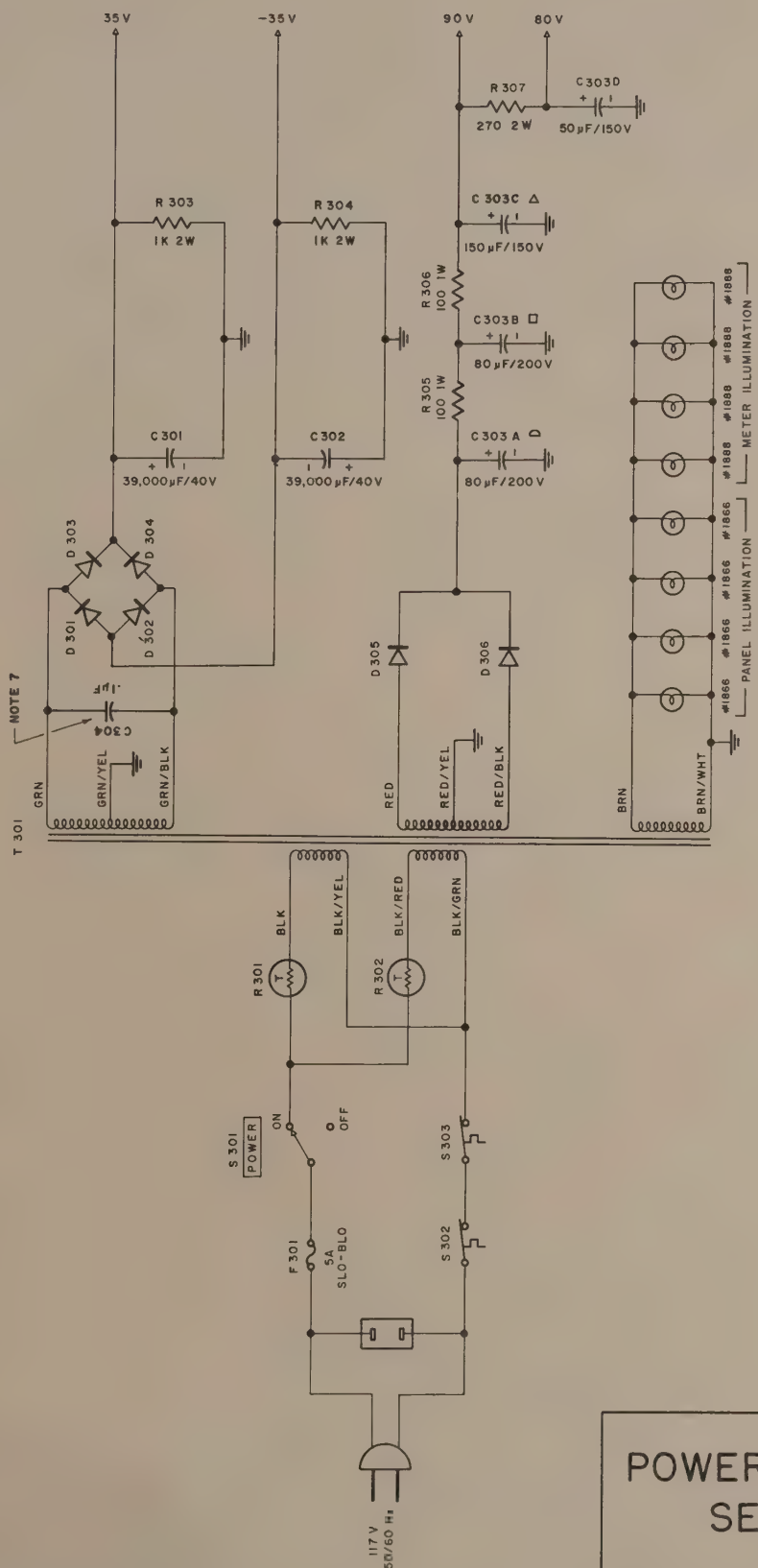

LEFT CHANNEL POWER OUTPUT SECTION
PRINTED CIRCUIT BOARD 043-899
80 V
BLU/WHT
15
R117
3.6K 5W 5%
D105
D103
Q107
.8V
.05 V
C107
.01
R119
22
R121
120 5%
R125
18K
R133
100
R129
100
NOTE 11
R111
1.8K 1%
0 V
NOTE 9
-.8 V
Q105
Q109
R123
150 5%
R127
18K
R155
10
R131
100
C103
100pF
-33.5 V
-34 V
-.05V
-.5 V
C109
.01
D101
D107
-.05 V
Q113
-.8 V
-34.5V
C117
.0012
NOTE 9
COAX
LEFT INPUT
FROM LEFT OUTPUT
OF INPUT SECTION
R101
3.6K 5%
Q101
0 V
.6 V
Q103
R103
3.3K
R105
680 1%
NOTE 11
C101
330µF/3V
-35 V
R113
560
R115
22
C121
150 µF/50 V
R135
100
0V
BLU
R109
30K 5%
R163
22
NOTE 9 C115
.0012
1.2 V
Q111
.6V
C123
220
NOTE 6


RIGHT CHANNEL POWER OUTPUT SECTION
PRINTED CIRCUIT BOARD 043-899
80 V
BLU/WHT
15
R118
3.6K 5W 5%
D106
D104
Q108
.8V
.05V
C108
.01
R120
22
R122
120 5%
R126
18K
R134
100
R130
100
NOTE 11
R112
1.8K 1%
0 V
NOTE 9
-.8 V
Q106
Q110
R124
150 5%
R128
18K
R156
10
R132
100
C104
100pF
-33.5 V
-34V
-.05V
-.5 V
C110
.01
D102
D108
-.05 V
Q114
-.8 V
-34.5V
C118
.0012
NOTE 9
COAX
RIGHT INPUT
FROM RIGHT OUTPUT
OF INPUT SECTION
R102
3.6K 5%
Q102
0 V
.6 V
Q104
R104
3.3K
R106
680 1%
NOTE 11
C102
330µF/3V
-35 V
R114
560
R116
22
C122
150µF/50 V
R136
100
90 V
BLU
R110
30K 5%
R164
22
NOTE 9 C116
.0012
1.2 V
Q112
.6V
C124
220
NOTE 6



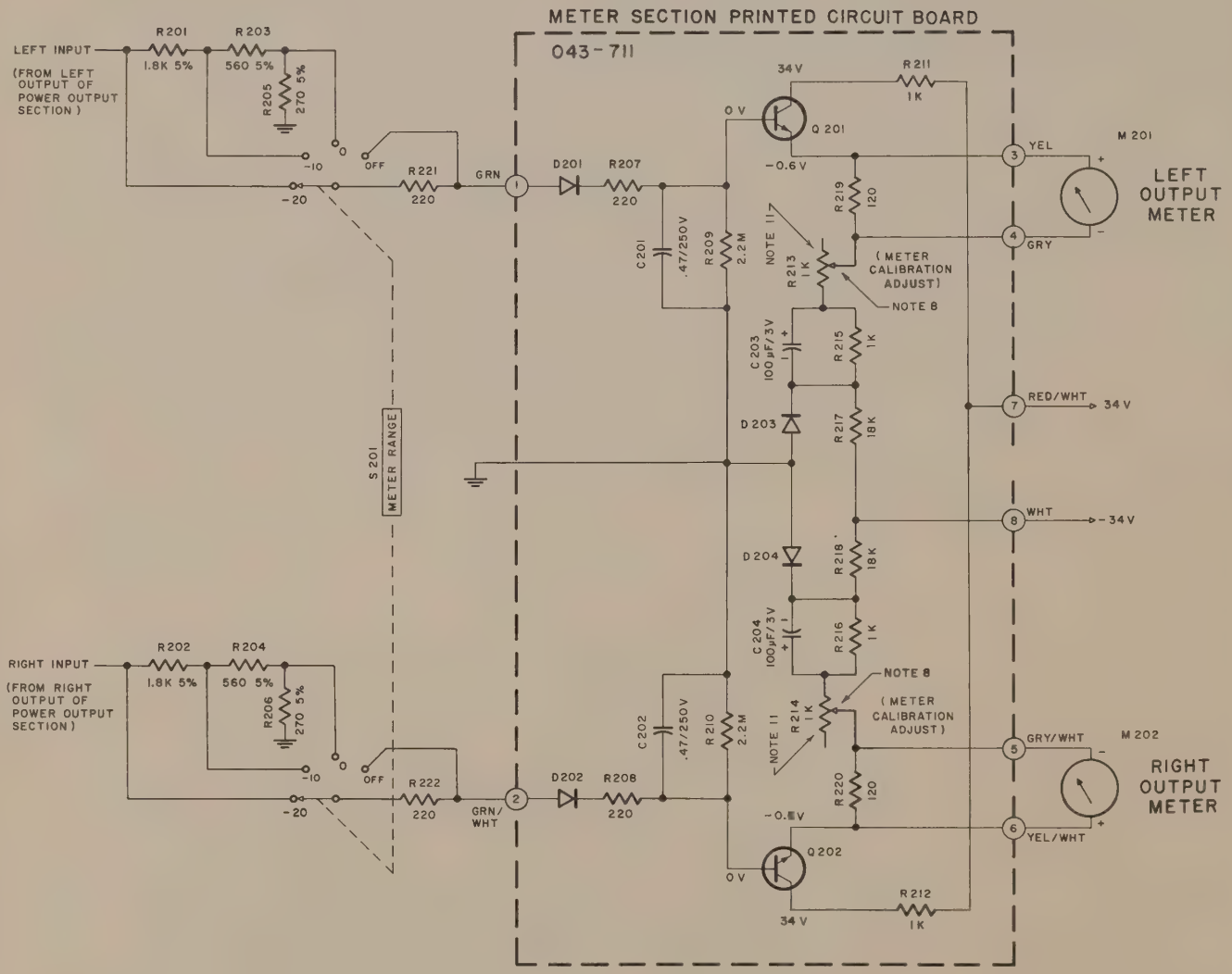
POWER OUTPUT SECTION

MC 2105 154-537



POWER SUPPLY SECTION

MC 2105 154 - 364



METER SECTION

MC 2105 154-538

SCHEMATIC NOTES

1. Unless otherwise specified: Resistance values are in ohms, 1/2 watt, and 10% tolerance; capacitance values smaller than 1 are in microfarads (μF); capacitance values greater than 1 are in picofarads (pF); inductors are in microhenries (μH).

2. Printed circuit board components are outlined on the schematics by dotted lines. The circled numbers on the dotted lines correspond to the numbers on the PC board layouts.

3. The heavy lines on the schematics denote the primary signal path.

4. The terminal numbering of rotary switches is for reference only.

5. All voltages indicated on the schematics are measured under the following conditions:

   a. Use of an 11 megohm impedance VTVM.

   b. All voltages ±10% with respect to chassis ground.

   c. No signal at input terminals.

   d. AC input at 117 volts AC, 50/60Hz.

   e. Front panel controls at:

Left Gain	FULLY CCW
Meter Range	OFF
Right Gain	FULLY CCW
Speakers	ON
Power	ON

6. C123 and C124 are not used in units with Serial No.'s from 26M08 to 26M48.

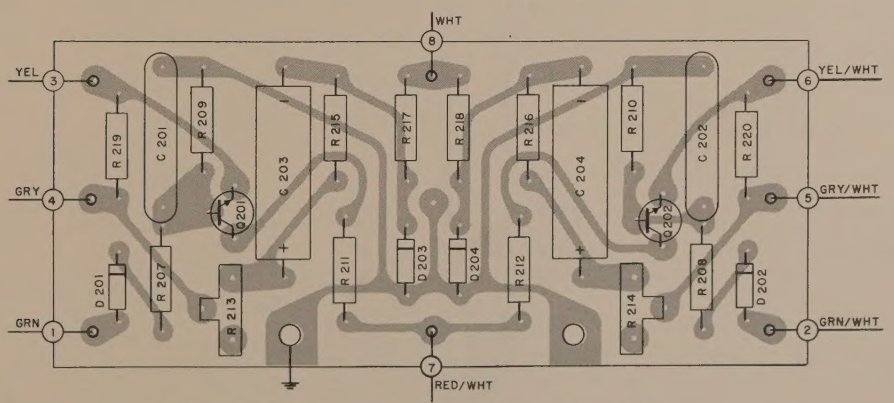
7. In units with Serial No.'s below 28M65, R9 and R10 are 4.7k; C5 and C6 are 500μF @ 16V (Part No. 066-107) and C304 is not used.

8. Adjust meter calibration controls R213 (left channel) and R214 (right channel) so output meters indicate +3dB when meter range switch is in the "0" position and the amplifier is delivering (105) 100 watts output.

9. In units with Serial No.'s below 34M07: C115, C116, C117, and C118 are 680pF; and R123 and R124 are 120 ohms.

10. In units with Serial No.'s below 30M87, C13 and C14 are not used.

11. In units with Serial No.'s below 74M12: R213 and R214 are 1k, and R111, R112, R105, and R106 are 5% tolerance resistors.



METER SECTION PRINTED CIRCUIT BOARD 043-711

REPLACEMENT PARTS

All parts not listed are common items abtainable from radio parts jobbers.

Replacement parts may be obtained when ordered by PART NUMBER from:

McIntosh Laboratory Inc.
Customer Service Department
2 Chambers Street
Binghamton, New York 13903
(telephone 607-723-3512)

CAPACITORS

Symbol Number	Description			Part Number
C1,2	Mylar	.22μF	250V	064-043
C3,4	Mylar	.47μF	250V	064-045
C5,6	Elect.	640μF	25V	066-157
C9,10	Elect.	10μF	25V NP	066-005
C11,12	Elect.	100μF	15V	066-127
C101,102	Elect.	330μF	3V	066-105
C121,122	Elect.	150μF	64V	066-190
C201,202	Mylar	.47μF	250V	064-045
C203,204	Elect.	100μF	3V	066-047
C301	Elect.	39,000μF	40V	066-119
C302	Elect.	39,000μF	40V	066-119
C303	Elect.	80/80/150/50μF 200/200/150/150V		066-095
C304	Dual disc	.1μF	100V	061-113

DIODES

D101,102	Si. signal diode	070-022
D103,104	Bias diode	070-046
D105,106	Si. signal diode	070-022
D107,108	Si. signal diode	070-022
D201,202	Ge. signal diode	070-052
D203,204	Ge. signal diode	070-052
D301,302	Rectifier Assy (Black)	043-903
D303,304	Rectifier Assy (Red)	043-904
D305	Si. rectifier	070-031
D306	Si. rectifier	070-031

FUSES

F301	Fuse 5 ampere Slo-Blo	089-007

METERS

M201,202	Meter (power level)	124-013

TRANSISTORS

Q1,2	Si. NPN transistor	132-054
Q3,4	Si. NPN transistor	132-054
Q5,6	Si. PNP transistor	132-056
Q101,102	Si. PNP transistor	132-056
Q103,104	Si. PNP transistor	132-056
Q105,106	Si. NPN transistor	132-515
Q107,108	Si. NPN transistor	132-021
Q109,110	Si. PNP transistor	132-032
Q111,112	Si. NPN transistor	132-038
Q113,114	Si. PNP transistor	132-039
Q115,116	Si. NPN transistor	132-070
Q117,118	Si. NPN transistor	132-070
Q119,120	Si. NPN transistor	132-070
Q121,122	Si. NPN transistor	132-070
Q123,124	Si. NPN transistor	132-070
Q125,126	Si. NPN transistor	132-070
Q201,202	Si. NPN transistor	132-054

POTENTIOMETERS

R1,2	Gain controls	134-208
R213,214	Meter calibration adjust	134-120

RESISTORS

R117,118	Wirewound	3.6k	5%	5W	139-096
R137,138	Wirewound	.56Ω		5W	139-061
R141,142	Wirewound	.56Ω		5W	139-061
R143,144	Wirewound	.33Ω		5W	139-071
R145,146	Wirewound	.33Ω		5W	139-071
R147,148	Wirewound	.33Ω		5W	139-071
R149,150	Wirewound	.33Ω		5W	139-071
R159,160	Wirewound	.33Ω		5W	139-071
R301,302	Thermistor				144-012

SWITCHES

S1	Input coupling switch	148-024
S101	Speaker switch	146-103
S201	Meter range switch	146-109
S301	Power on-off switch	146-102
S302,303	Thermal cut-out	153-007

TRANSFORMERS

T101,102	Output transformer	043-694
T301	Power transformer	043-693

FRONT PANEL AND TRIM	
Front panel	043-735
Front panel end caps	018-112
Knobs (all controls)	044-372
LAMPS	
#1866 (for wording)	058-014
#1888 (for meters)	058-029
PANLOC SYSTEM	
Shelf bracket (right)	043-678
Shelf bracket (left)	043-679
Mounting template #300	038-244
Hardware package	043-691
MISCELLANEOUS ITEMS	
Plastic feet	017-041
Shipping carton	043-793
Owners manual	038-550
Line cord	170-021

MC 2105 SCHEMATIC PART NO. 038–593